

REMARKS

Claims 1-36 are pending in the application. Claims 4, 5, and 8 are withdrawn from consideration. Claims 1-3, 6, 7 and 9-36 stand rejected. Claims 1 and 22 have been amended. No new matter has been added. Reconsideration of the application as amended is respectfully requested. The Examiner's objections and rejections are addressed below in substantially the same order as in the office action.

Claim Rejections - 35 USC § 102

Claims 1-3, 6-7, 22-24 and 35-36 are rejected by the Examiner under 35 U.S.C. 102(b) as being anticipated by Cloud (U.S. Patent No. 2,281,751). Claims 1 and 22 are independent claims.

For a claim to be anticipated by a prior art reference, the reference must show or disclose each and every feature of the claim as provided in the claim. The Applicants submit that none of the independent claims is anticipated because Cloud does not show or disclose at least one feature contained in each of the independent claims.

In rejecting independent claim 1, the Examiner states:

With respect to claim 1 Cloud discloses a well bore system for producing seismic energy in an earth formation, comprising: A cavity (13 in figure 1) configured to be disposed in a wellbore (12); and a drive source (That is the tool in its entirety including hose 24 in figure 1 comprising the piston, and prime mover 34) in fluid communication with the cavity (by means of hose 24) the drive source configured to inject fluid under pressure into the cavity to generate pressure waves in said cavity, the cavity producing seismic waves in the earth formation in response to the pressure waves, wherein fluid circulates between the cavity and the drive source in a closed loop (that is the fluid cannot escape form the closed loop of the reservoir 22, cavity 13 and prime mover of the drive source).

Applicants respectfully disagree.

Amended claim 1 includes the feature of

a drive source in fluid communication with the cavity, the drive source configured to inject fluid under pressure into the cavity to generate pressure waves in said cavity, the cavity producing seismic waves in the earth formation in response to the pressure waves, wherein the fluid circulates from the drive source to the cavity and back to the drive

cavity and back to the drive source in a closed loop manner.

(Emphasis added.) Figure 1A of the Application illustrates the closed loop drive source 105 where fluid circulates in the loop including feedback line 117, reservoir 109, pump 111, accumulator 113 and excitation valve 115. Further, the Specification states that “The fluid circulates between the cavity 103 and the drive source 105 in a closed-loop fashion.” See Application, page 19, lines 12-13.

Cloud does not disclose or suggest this feature. In contrast, Cloud discloses a cross section 18 that has individual branches that enable fluid communication to a pump 26, a bag 13 and a stand pipe. See Cloud, page 2, column 1, lines 61-68; FIG. 1. Applicants note that mere fluid communication between two or more points does not constitute a closed loop. Moreover, the fluid of Cloud does not circulate from a drive source to a cavity and back to the drive source in a closed loop manner, as recited by amended claim 1.

Therefore, Cloud does not disclose at least one feature of amended claim 1. Accordingly, Applicants respectfully submit that claim 1 is not anticipated by Cloud.

Claims 2-3, 6-7 and 35 depend from claim 1 and therefore are not anticipated by Cloud for at least the reasons presented with respect to claim 1.

Amended claim 22 includes the features of amended claim 1 and therefore is not anticipated by Cloud for at least the reasons presented with respect to claim 1.

Claims 23-24 and 36 depend from claim 22 and therefore are not anticipated by Cloud for at least the reasons presented with respect to claim 22.

Claim Rejections - 35 USC § 103

Claims 9 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cloud in view of Stangroom (W09750077). Claims 9 and 25 depend from amended claims 1 and 22, respectively.

Stangroom is cited by the Examiner for disclosing the use of a smart fluid as the working fluid for an acoustic transducer. However, Applicants submit that Stangroom does not disclose the feature of a drive source in fluid communication with the cavity, the drive source configured to inject fluid under pressure into the cavity to generate pressure waves in said cavity, the cavity producing seismic waves in the earth formation in response to the pressure waves, wherein the fluid circulates from the drive source to the cavity and back to

the cavity and back to the drive source in a closed loop manner, as recited by independent claim 1.

Thus, Stangroom fails to obviate the deficiencies of Cloud discussed above with respect to amended claim 1. Therefore Cloud and Stangroom, either alone or in any combination, do not disclose at least one feature of the base claims of claims 9 and 25. Accordingly, claims 9 and 25 are not obvious over Cloud, Stangroom and the prior art of record for at least this reason.

Claims 10-13 and 26-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cloud in view of Stangroom as applied to claim 9 above and further in view of Wassel (U.S. Patent 6,257,356). Claims 10-13 and 26-28 depend from amended claims 1 and 22, respectively.

Wassel discloses a steerable drill string with a guidance module that includes a magnetorheological fluid to cause forces to alter a drilling direction. Thus, Wassell fails to cure the deficiencies of Cloud discussed above with respect to amended claim 1. As discussed above with respect to claims 9 and 25, Stangroom also fails to obviate the deficiencies of Cloud.

Accordingly Cloud, Stangroom and Wassel, either alone or in any combination, do not disclose at least one feature of the base claims of claims 10-13 and 26-28. Accordingly, Applicants respectfully submit that claims 10-13 and 26-28 are not obvious over Cloud, Stangroom, Wassel and the prior art of record for at least this reason.

Claims 14 and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cloud in view of Stangroom and Wassel as applied to claim 10 above, and further in view of Dedole. Claims 14 and 29 depend from amended claims 1 and 22, respectively.

Dedole discloses a device for generating pulsed stresses to a well through anchored shoes of a body in the well. Thus, Dedole does not disclose the feature of a drive source in fluid communication with the cavity, the drive source configured to inject fluid under pressure into the cavity to generate pressure waves in said cavity, the cavity producing seismic waves in the earth formation in response to the pressure waves, wherein the fluid circulates from the drive source to the cavity and back to the drive source in a closed loop manner.

Therefore Cloud, Stangroom, Wassel and Dedole, either alone or in any combination, do not disclose at least one feature of the base claims of claims 14 and 29. Accordingly, Applicants respectfully submit that claims 14 and 29 are not obvious over Cloud, Stangroom, Wassel, Dedole and the prior art of record for at least this reason.

Claims 15-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cloud in view of Stangroom, Wassel and Dedole as applied to claim 14 above, and further in view of Varsamis (U.S. Patent No. 6,366,531).

Varsamis is cited for disclosing a control unit configured to adjust a drive source in response to a measurement provided by a sensor.

Varsamis does not disclose the feature of a drive source in fluid communication with the cavity, the drive source configured to inject fluid under pressure into the cavity to generate pressure waves in said cavity, the cavity producing seismic waves in the earth formation in response to the pressure waves, wherein the fluid circulates between the cavity and drive source in a closed loop.

Therefore, Cloud, Stangroom, Wassel, Dedole and Varsamis either alone or in any combination, do not disclose at least one feature of the claim 1 from which claims 15-17 depend. Accordingly, Applicants respectfully submit that claims 15-17 are not obvious over Cloud, Stangroom, Wassel, Dedole, Varsamis and the prior art of record for at least this reason.

Claims 18 and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cloud in view of Dedole. Claims 18 and 32 depend from amended claims 1 and 22, respectively.

Cloud and Dedole, either alone or in any combination, do not disclose at least one feature of the base claims of claims 18 and 32. Accordingly, Applicants respectfully submit that claims 18 and 32 are not obvious over Cloud, Dedole and the prior art of record.

Claims 19-21 and 30-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cloud in view of Dedole as applied to claim 18 above, and further in view of Varsamis. Claims 19-21 and 30-31 depend from amended claims 1 and 22, respectively.

Cloud, Dedole and Varsamis, either alone or in any combination, do not disclose at least one feature of the base claims of claims 19-21 and 30-31. Accordingly, Applicants respectfully submit that claims 19-21 and 30-31 are not obvious over Cloud, Dedole, Varsamis and the prior art of record for at least this reason.

CONCLUSION

For all the foregoing reasons, Applicants submit that the application is in a condition for allowance and such an action is requested. The Commissioner, however, is authorized to charge any fee that may be due or credit any overpayment related to the filing of this paper to Deposit Account No. **13-0010 (054-14966-USCP)**

Respectfully submitted,

Dated: October 28, 2009

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